Newsletter of the North American Mycological Association

THE MYCOPHILE

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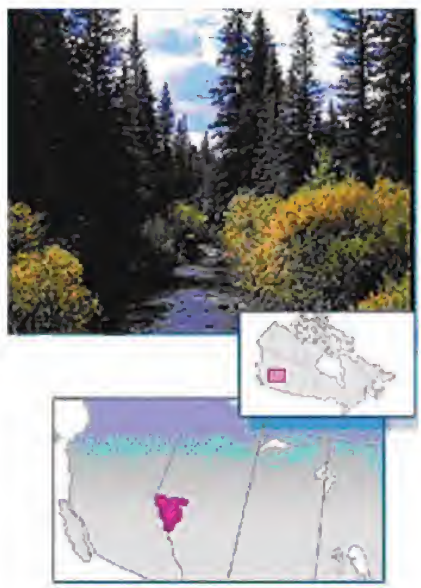
NAMA Foray 2006 Travels to Hinton, Alberta, Canada

by Dr. Markus N. Thormann and Martin Osis

This year the Edmonton Mycological Society will host NAMA in the foothills of the Rocky Mountains.

The Foothills Natural Region is a transitional zone between the Rocky Mountain and other natural regions, running along the eastern edge of the Canadian Rocky Mountains. Due to its higher elevation, summer temperatures are cooler, although the region often escapes the severe cold of Arctic air masses in winter. This results in warmer winter temperatures than in portions of the Boreal Forest and Parkland Regions.

Many of the forays will take place in this natural region around Hinton, the "Foothills Model Forest." The Model Forests program was created in 1992 and includes among its partners the forest industry, environmental groups, woodlot owners, academics from numerous universities, aboriginal communities, parks, government agencies, recreational groups, trappers, and anyone who has an interest in sustainable forest management.



Site of the Annual Foray is shown in pink on map. Photos courtesy of Markus Thormann.

The Foothills Model Forest is the second largest of Canada's model forests. It covers about 2.75 million hectares (27,500 km²) and embodies Jasper National Park, the Willmore Wilderness Park, forest management area of Hinton Wood Products and "Crown forests." The Foothills Model Forest develops projects in support of 12 program themes, including projects on the impacts of natural disturbances, the monitoring of grizzly bear populations, and the socio-economic impacts of tourism in Alberta's parks. In addition, it is active in the areas of biodiversity, forest health, water quality, watershed planning, and climate change.

Within Foothills Model Forest boundary a conglomerate of very different forest areas—boreal, montane, and subalpine—has resulted in a great diversity of habitats, plants, and animals. This includes numerous provincially and nationally rare plant species, an abundance of uncommon birds, and important elk, moose, deer, and other fur-bearer habitats as well as critical nesting habitat for osprey. Not surprisingly, little is known about the fungal biodiversity in this region. Edmonton Mycological Society hopes that the NAMA foray will help begin to fill this information void.

On a weekend foray in central Alberta, just south of the Foothills

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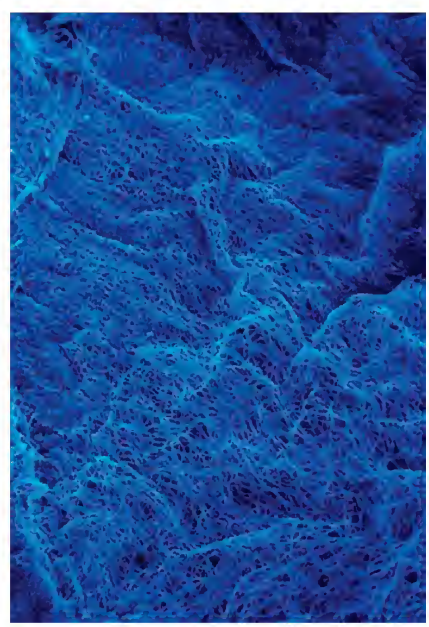

SEM of fungal mycelium, courtesy of Paul Stamets. See page 13 for a review of his latest book, Mycelium Running.

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Au Canada!

by Allein Stanley

NAMA's 2006 Annual Foray will return to our northern neighbor's territory August 17–20. This year we shall search the foothills and the edges of the boreal forest from Hinton, Alberta. We are excited about yet another new collecting site and about such an opportunity to visit this spectacular subalpine region of the West, where fungi reputedly abound. We will also be in sight of the Canadian Rockies, with all of their fabulous scenery and fascination. We expect members of the Edmonton Mycological Society to join us and share their knowledge of the local areas.

We originally had scheduled the foray at a facility close to Hinton, Venturescape; however, our requirements proved more extensive than it could accommodate. Our new location is the Forestry Training Center in the town of Hinton, where we will have ample classroom and display areas. We also will have our breakfasts and lunches on campus, but for our evening meals and programs we will move across the road to the Hinton Community Center—a site large enough for our entire group.

At present, the Forestry Center can guarantee us 114 beds, possibly more, depending on the wildfire season and the necessity of lodging firefighters. The rooms are designed for double occupancy with single beds. Non-coed bathrooms are in the halls. There are elevators, but air conditioning is unnecessary this far north. In fact, evenings are cool enough in August for a light wrap. We can socialize in a bright room with a stone fireplace or around the big firepit in the woods between classrooms and gym. In addition, there is a campsite adjacent to the Community Center from which we will shuttle and numerous others within a five mile radius of the center for a more rustic adventure.

Due to a heavy influx of energy personnel, we were unable to obtain a block of motel rooms. Some rooms may be available in the many local motels on an individual basis. August is prime tourist season in these parts, so expect a high demand on rental cars, motel rooms, campsites, and even campers (should that alternative appeal). We encourage early registration as this promises to be an exceptional experience.

Some of our foray sites are described in the article starting on page 1. We also are planning a foray by canoe through two beautiful lakes. This foray will be limited due to the number of canoes, but we could schedule both a morning and an afternoon session.

We recommend flying into Edmonton, less than three hours from Hinton. We are considering a shuttle to the airport, should there

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Time to Nominate NAMA Officers!

Proposed slate: Ike Forester, President; Bob Fulgency, First Vice-President; and Judith McCandless, Treasurer. Each has indicated a willingness to continue to serve another term in his or her respective position. Other nominations may be submitted by the general membership. The nominations must be received prior to the 2006 NAMA Annual Meeting in August for distribution to the Trustees. A nomination must include in writing: (1) the nominee's consent to serve, and (2) a brief biographical description of the nominee's qualifications and experience.

Moving?

Please send your new address, ***two weeks*** before you move, to

Ann Bornstein
NAMA Membership Secretary
336 Lenox Avenue
Oakland, CA 94610-4675
<Membership@namyco.org>

Otherwise—you may not be getting your newsletter for a while. Each issue, several *Mycophiles* are returned as undeliverable because of no forwarding address on file. NAMA is charged ***seventy cents*** for each returned or forwarded newsletter.

NAMA is a 501(c)(3) charitable organization. Contributions to support the scientific and educational activities of the Association are always welcome and may be deductible as allowed by law. Gifts of any amount may be made for special occasions, such as birthdays, anniversaries, and for memorials.

Special categories include
Friend of NAMA: $500–900
Benefactor: $1000–4900
Patron: $5000 and up

Send contributions to
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330 Wildwood Place
Louisville, KY40206-2523
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2006 Mycology & Lichenology Seminars at Humboldt Inst.
Steuben, Maine

Lichens and Lichen Ecology
May 21–27, 2006
Dr. David Richardson
<david.richardson@SMU.CA>
Dr. Mark Seaward
<m.r.d.seaward@bradford.ac.uk>

Advanced Mycology: Field and Lab Studies
June 18–24, 2006
Dr. Donald H. Pfister
<dpfister@oeb.harvard.edu>

Lichens for Naturalists
July 2–8, 2006
Dr. Fred C. Olday
<folday@panax.com>

Crustose Lichens: Identification Using Morphology, Anatomy, and Simple Chemistry
July 16–22, 2006
Dr. Irwin M. Brodo
<ibrodo@mus-nature.ca>

Slime Molds: Taxonomy and Ecology of Myxomycetes
July 23–29, 2006
Dr. Steven L. Stephenson
<slsteph@uark.edu>

The Fruticose Lichen Genus *Usnea* in New England
September 3–9, 2006
Dr. Philippe Clerc
<philippe.clerc@cjb.ville-ge.ch>

Intermediate Mushrooms for Naturalists
September 10–16, 2006
Dr. Rosalind Lowen
<Roz.lowen@gmail.com>
Dr. Lawrence Leonard
<lleonar1@maine.rr.com>

Development of Electronic Natural History Identification Guides
October 2–6, 2006 (Monday and Friday are travel days)
Fred SaintOurs
<fred.saintours@comcast.net>

Eagle Hill Seminars

In support of field biologists, modern field naturalists, and students of the natural history sciences, Eagle Hill offers specialty seminars and workshops at different ecological scales for those who are interested in understanding, addressing, and solving complex ecological questions.

Topics range from watershed level subjects and subjects in classical ecology to highly specialized seminars in advanced biology, taxonomy, and ecological restoration.

Eagle Hill offers hard-to-find seminars and workshops that provide important opportunities for training and meeting others who are dedicated to the natural history sciences. Eagle Hill field seminars are of special interest because they focus on the natural history of one of North America's most spectacular and pristine natural areas, the coast of eastern Maine from Acadia National Park to Petit Manan National Wildlife Refuge and beyond.

Most seminars combine field studies with follow-up lab studies and a review of the literature. Additional information is provided in lectures, slide presentations, and discussions. Seminars are primarily taught for people who already have a reasonable background in a seminar program or in related subjects, or who are keenly interested in learning about a new subject. Prior discussions of personal study objectives are welcome.

For more information, please contact the Humboldt Institute, P.O. Box 9, Steuben, ME 04680-0009; phone 207-546-2821; fax 207-546-3042; email <office@eaglehill.us>. Online registration and information at http://www.eaglehill.us.

Mycological Society of America / Canadian Phytopathological Society / American Phytopathological Society
Québec City, Québec, Canada
July 29–August 2, 2006

This joint annual meeting is still in the planning stages.

NAMA Annual Foray
Hinton, Alberta, Canada
August 17–20, 2006

This foray is still being planned—see this issue. Additional details can be found at the NAMA website.

IMC8: 8th International Mycological Congress
Cairns, Australia
August 21–26, 2006

Details can be found on the website: www.sapmea.asn.au/imc8.

Alaska's Wild Mushrooms
August 25–27, 2006

This foray will be held at "Across-the-Bay Tent and Breakfast," across Kachemak Bay from Homer and on Kasitsna Bay. Price of foray includes rustic, cozy accommodations, delicious meals, a wood-fired sauna, and scenic surroundings. Explore the hemlock and spruce forests of the Kenai Peninsula for wild mushrooms with Alaska mushroom enthusiast Chris Riggio.

Cost includes water transportation from Homer, accommodations, meals, and foray. Add an extra day to the workshop for a sea kayak trip, mountain biking, or hiking (an additional charge will apply). Foray limit is around 17 persons. For more information contact owners Mary Jane and Tony Lastufka: tel. 907-235-3633/345-2571; email <ecotour@ptialaska.net>; or visit website www.tentandbreakfastalaska.com.

Continued on page 4

Forays and Annoucements, continued from page 3

Bavarian Mushroom Foray *Summer 2006*

Posh Journeys, Helga VanHorn and Freia Bradford, member of Pikes Peak Mycological Society, offer a ten-day mushroom tour in Garmisch-Partenkirchen for late summer. For details, see the Jan./Feb. issue of THE MYCOPHILE. *Itinerary is now set!* Visit the Posh Journey website, www.poshjourneys.com, or contact Freia (tel. 719-784-3838, email <freia@redgeckointernet .net>) or Helga (tel. 775-852-5105, email <contact@poshjourneys.com>). This unusual and personal trip will be limited to a small group.

Foray Newfoundland & Labrador *Avalon Peninsula, Newfoundland, Canada*

September 15–17, 2006

Forays of 6–10 people will be conducted in various provincial and federal parks, covering multiple habitats: boreal forest, coastal highland and heath, unfertilized meadow, sand dunes, bogs, and fens. This event offers an excellent opportunity for amateur naturalists to learn about mushrooms beside professionals and seasoned mycophiles, and for veterans to share experiences with the like-minded.

Places are limited and will be filled on a first-come first served basis. Early registrants get a discount and are assigned more desirable accommodations.

Each evening two to three mycological lectures will be featured as well as discussions around collecting tables. Species list will be backed by photographs of collections and archived voucher specimens.

Faculty: Michael Burzynski, *Dave Malloch, Faye Murrin, *Ron Peterson, Stan Pieda, *Greg Thorn, Andrus Voitk, Gary Warren (* = guest faculty; other guest faculty TBA). Check back on our website, www.hnhs.ca/mushrooms.

Thailand Mushroom Ecotour

We are currently trying to organize a mushroom-oriented "ecotour" in northern Thailand, outside of Chiang Mai. Features of the tour will be determined by participants later but will revolve around collecting in the mountainous areas near Chiang Mai. Lectures, cultivation workshops, cooking demonstrations, field identification, and microscope work will also be components.

The tour program will include transport, food, accommodations, use of laboratory equipment, and guided collecting trips with a native English speaker, Dr. Edward Grand, who is a recent graduate of the University of Tennessee, where he studied *Lentinus*, *Panus,* and other Basidiomycetes with Dr. Ronald Petersen. The Mushroom Centre houses several students working with Basidiomycetes as well as frequent visiting researchers.

For more information about the Centre or the tour, please email Dr. Grand at <edwardgrand@yahoo.com> or visit the website: www.mushroomresearchcentre.net.

Please note that biological material cannot be taken outside of Thailand without the permission and/or collaboration of a Thai university or institution.

Bryce Kendrick wants YOU . . . to help with a research project!

"I recently read Charles Darwin's fascinating book on earthworms. (He showed them to be almost as important as fungi in the workings of the biosphere; you can find the text of his book at www.webmesh.co.uk/darwinworms1.htm .) He maintained an active and fruitful correspondence with amateur scientists in many countries and incorporated input from them into his book.

"I am not even remotely trying to get on the same page as Darwin, but professional mycologists can certainly use help from the many keen amateurs who are to be found almost everywhere.

"My purpose in writing this is to ask for your help. I am studying the phenomena of rare vs. common macrofungi. Of course, this begins by looking at records: how often do individuals or groups collect/see a particular fungus? This leads, of course, to other questions: Is a fungus likely to be less common if it makes a large fruit body rather than a minute one? Is it less likely to be recorded if it is very small or cryptic? Is it more likely to be found in habitats frequented by mushroom seekers or in other less-visited areas? Some fungi are more seasonally limited than others: how does this affect records of each group?

"One question appears to be more important than any other: the likelihood of a fungus being seen must be proportional to the longevity or persistence of the fruit bodies.

"And this is my request: If any of you have information on the actual longevity of agaric or other macrofungal fruit bodies, I would be very pleased to receive it. We know that some species of what used to be called *Coprinus* are extremely short-lived, and that polypores can persist for many years; but there are thousands of taxa that sit between those extremes, and they are the ones I would like to hear about.

"Here is the kind of data I need: Name of species. Size of fruit body (e.g., cap diameter, overall height). Approximate weather conditions and temperatures prevailing (mushrooms can freeze and sit there for months after their "best before" dates!). Longevity of individual fruit bodies in days, with actual dates of initial development and final disappearance or decay.

"I will be happy to give credit for any information I can use in the final compilation."

—Bryce Kendrick PhD, DSc, FRSC
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Sidney-by-the-Sea, B C
V8L 1M8, Canada
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<bryce@mycolog.com>
Websites: www.mycolog.com,
www.fungi.ca

The North American Mycological Association
NAMA '06
Hinton Training Center, Hinton, Alberta, Canada
Thursday, August 17th, through Sunday, August 20th, 2006

Ann Bornstein, Registration
336 Lenox Ave., Oakland, CA 94610-4675
<gramma.ann@att.net> • Tel. (510) 839-2487

Complete both sides of this form and send to Ann Bornstein with your check, payable to ***NAMA '06.***

Name(s): _____

Address: _____

City, State, Zip: _____

Phone: _____ Email: _____

Names and club affiliation for name tags: _____

Assign roommate: ❑ Male ❑ Female I want to share a room with _____

REGISTRATION

		U.S. $	Can $	
Complete package (Thurs. noon to Sun. lunch)	#_____	@ $290 each	$333 each	$_____
Single supplement	#_____	@ $ 78	$ 90	$_____
(includes 3 nights, 9 meals, and all programs)				
Hinton Campground Camping	#_____	@ $252	$290	$_____
(includes programs, 6 meals, no breakfasts)				
NAMA Trustees meeting Wed. August 16th	#_____	@ $ 65	$ 75	$_____
Single supplement	#_____	@ $ 40	$ 46	$_____
(includes 2 nights, breakfast and lunch only)				
NAMA membership (required if not current)	#_____	@ $ 35	$ 40	$_____
Late fee (afterJuly 1)	#_____	@ $ 50	$ 57	$_____
Mycology student discount: subtract	#_____	–$100	–$115	$_____

School _____

Total ..... $_____

Do you require vegetarian meals or have other special concerns? _____

Are you a vendor? Items for sale _____ Amt. of space desired _____

We must have a signed release for all adults attending the foray. See next page.

LIABILITY RELEASE AND PROMISE NOT TO SUE

I understand that there is some risk in participating in a mushroom foray and conference: all those risks one assumes by being away from home, risks associated with moving about in fields and woods, risks involved in eating wild mushrooms, risks of losing personal property by theft or misplacement, and all other expected and unexpected risks.

In registering for or attending this foray, I agree to assume total responsibility during this event for my own safety and well-being, and that of any minor children under my care, and for the protection of my and their personal property. I release the North American Mycological Association (NAMA), its trustees, officers, employees, contractors, and all other persons assisting in the planning and presentation of this event from liability for any sickness, injury, or loss I or any minor children under my care may suffer during this event or as a result of attending and participating. I further promise not to file a lawsuit or make a claim against any of the persons listed above, even if they negligently cause me or my minor children injury or loss. Finally, I agree to hold NAMA harmless from any liability it may incur as a result of any damages to Hinton Training Center property that I may cause.

This release and promise are part of the consideration I give in order to attend this event. I understand that it affects my legal rights. I intend it to apply not only to me but to anyone who may have the right to make a claim on my behalf.

Signature 1: _____ Date: _____

Print Name 1: _____

Signature 2: _____ Date: _____

Print Name 2: _____

VOLUNTEER OPTIONS

If you can help in any way, please let us know. The volunteer time of our members is what continues to make NAMA forays such a success and great time for everyone. The coordinator will contact you with details prior to the foray.

❑ Display & identification area _____
❑ Set up ❑ Assist identifiers ❑ Clean up

❑ Mycophagy _____
❑ Set up ❑ Preparation (Sat.) ❑ Clean up

❑ Raffle _____
❑ Solicit prizes prior to foray ❑ Assist at foray

❑ Other: _____

_____

_____

Foray Newfoundland & Labrador 2005

This year's Foray was a double event, with one session in spectacular Gros Morne National Park Sept. 2–5 and a second session in the stunning Labrador Straits Sept. 6–9. As in past years, the Foray was sponsored by the Humber Natural History Society, aided by its several kind partners: the Department of Environment and Conservation; the Hon. Tom Osborne, Minister; Gros Morne National Park; Gros Morne Cooperating Association; the Western Newfoundland Model Forest; Sir Wilfred Grenfell College of Memorial University; Seaview Restaurant and Cabins in Forteau; and Altius Minerals Corporation.

Mushroom enthusiasts from the U.S., Canada, Holland, and Newfoundland and Labrador foraged the autumn woods for mushrooms. The weather couldn't have been better, and the mushrooms were out in full force. The experts were kept busy: 208 species were identified in Gros Morne and 144 in Labrador, with an overlap of 48 for a total of 304, bringing our three-year cumulative species count to 451.

This year's big-game encounter was a bull moose who returned to camp each evening to pose for close range photos and videos. Evening activities consisted of a reception by the Department of Environment and Conservation and a mushroom cook-up. Other than that, the evenings were filled with an interesting program by our experts, local and visitors.

The whole group spent two hours foraging the entire Saddle Island. You'd think there's not much on these coastal barrens but almost every kind of Omphalina *was collected there. Photo: Jamie Graham.*

Reports of Foray Newfoundland & Labrador from 2003 to 2005 can be viewed or downloaded from the Humber Natural History Society's web page, www.hnhs.ca/mushrooms. Meanwhile, plans for 2006 are already underway on the Avalon Peninsula September 15–17. A Preliminary Report of Avalon Mycoflora and Advance Notice are also on the website; updates will be added as the date nears. The combination of enthusiastic foragers, Newfoundland hospitality, a stellar group of experts, and a new and exciting location with some unusual mycoflora should produce an exciting foray and several more new species!

The resident churchmoose poses while trimming the chapel bushes, which he processes into Stropharia alcis *substrate* [*see page 20*]. *Photo: Barry May.*

The crew by the lighthouse at Point l'Amour. The lab and sorting tables were in the adjoining building, and the experts' quarters next door, allowing the identifiers to enjoy the foghorn bellow.

FUNGI IN THE NEWS

Humongous Fungus in Missouri: I recently got word from Ron Meyers of the Kaw Valley Club in Kansas that a HUGE sulfur shelf was found last fall. An article on the discovery appeared in *The Kansas City Star* newspaper. It seems a fellow named Ty Whitmore was cutting firewood in northwest Missouri when he spotted a giant orange mushroom growing from the side of a maple tree. He used a handsaw to cut it off the tree, but the largest portion of the mushroom fell into the stream below. The water was too deep and cold for him to mount a rescue operation. The smaller portion that he was able to save he carried to his pickup truck and drove to a nearby grocery store. On the store's scale the mushroom was found to weigh 56 pounds! According to the newspaper account, a Missouri Department of Conservation employee measured the saved portion to be 30 inches wide and 16 inches from top to bottom. Mr. Whitmore speculated that the lost portion of the humongous fungus may have weighed more than 70 pounds and that the entire mushroom may have tipped the scales at an incredible 120 pounds! According to the newspaper article, the Guinness Book of World Records lists the largest edible mushroom as a 48-pound 8-ounce giant puffball.

Good News/Bad News about Morels: Get ready, fresh morels soon will be in your grocery store—year 'round! But they'll probably cost around $13 for a 3.5-ounce box.

It seems every few years someone buys the patent rights to cultivate morels. The technique was first developed by Robert Ower and Gary Mills. Well, Mills is back—this time with his own company. With backing from Toyota Motor Corp. and other investors, he is growing the highly prized fungi and four other exotic mushrooms in a massive new facility in western Michigan, using local forest products such as sawdust, bark and composted leaves. Sold under the name Woodland Exotics, the mushrooms are showing up in markets in metro Detroit, Lansing, Battle Creek, and Chicago. So far, they're getting an enthusiastic reception. His fledgling company, Diversified Natural Products Inc. in Scottville, near Ludington, soon may become the Midwest's major supplier of specialty, or exotic, mushrooms. According to Mills, the company currently harvests 16,000 pounds a week at full capacity, and about 3,000 pounds will be morels. For more information, check out their website, www.dnpworld.com.

Sad news from the Mushroom Capitol: In Kennett Square, Pennsylvania, officials are still trying to determine what started a fierce blaze that destroyed Sunny Dell Foods' mushroom and vegetable processing plant on the night of January 27, 2006. The fire devastated a company that employs about 100 people. Fortunately, no injuries were reported among plant workers who escaped the blaze nor the 150 firefighters who fought it. Mushrooms have been processed at the plant for more than 50 years, and there is no word on the future of the company or its workers.

Amphibians in Danger: An infectious fungus aggravated by global warming has killed entire populations of frogs in Central and South America and driven some species to extinction, scientists report in the January 12, 2006 issue of the prestigious British journal *Nature* (439: 161–67). In research that showed the effects of rising temperatures on delicate ecosystems, a team of researchers found that a warming atmosphere encouraged the spread of a fungus that has wiped out species of harlequin frogs and golden toads.

Researchers in Monteverde Cloud Forest Preserve in Costa Rica established the link between global warming and the disappearance of frogs in the cloud forests of Costa Rica by analyzing sea surface and air temperatures, which rose by 0.18°C per decade between 1975 and 2000. Warmer temperatures increased cloud cover over the tropical mountain, which the scientists believe promoted conditions to spur the growth of the chytrid fungus that kills frogs. They are confident that global warming is a key factor in the disappearance of many amphibian populations in tropical forests.

About a third of the 5,743 known species of frogs, toads and other amphibians are classified as threatened, according to the Global Amphibian Assessment. Up to 167 species may already be extinct, and another 113 species have not been found in recent years. Habitat loss is the greatest threat to amphibians, but fungal disease is also a serious problem.

To see some truly beautiful photos of many of the vanishing frogs from Costa Rica, described above, check out the "Geographica" section of the January 2006 *National Geographic* magazine.

But the Good News Is . . . Climate may also trigger a fungus that makes superior wine. Most mycophiles across North America and Europe are chomping at the bit right now with several weeks to go before spring returns—and *we* return to woodland forays in pursuit of those blessed fruits of the Fifth Kingdom. Most of us enjoy the pursuit and relish a well-prepared dish made with any number of wild mushrooms, but we can also appreciate other, nonmushroomy, members of the fungal kingdom at the dinner table, something to accompany that great meal. And I'm not just talking regular old beer and wine here. The products of fungal

fermentations by yeasts are not the only game in town. Some wine grapes may undergo a "noble rot," and the results truly are fit for nobility. Never heard of noble rot? Well, you've certainly seen its cause, a fungus called *Botrytis cinereus.* It causes all sorts of gray moldy infestations around the house, mostly on fruit in the refrigerator. I'll not speak to the putrefaction awaiting you in your fridge, but when the conditions are just right in the vineyard—which may be rarely or never—the fungus attacks wine grapes, resulting in some of the greatest wines you'll ever taste: Sauternes of France (and North America), Tokaj (or Tokay) of Hungary. (Although I'm an amateur wine maker, I've never dared to make one of these wine styles; for a review see the Aug/Sep 2004 issue of *Wine Maker Magazine.*)

It seems that this past fall was a great time for noble rot, according to a story in a recent issue of the *Budapest Sun* newspaper. But getting Mother Nature, and *Botrytis,* to cooperate is only the beginning. There's still a lot of work ahead. Picking grapes for Tokaj wines is the single most laborious, and thus most expensive, grape-picking method. After you learn what it takes to make the amber colored Tokaji aszú wine, your admiration for the great nectar is bound to grow. The production of aszú is far more complicated than its most superficial explanation—a wine squeezed from almost rotten grapes. The grapes look dry indeed, but good aszú is not made from grapes white with mould. So what is this super-toilsome and expensive method?

As pointed out, noble rot is far from unique to Tokaj, but Hungary does provide very favorable conditions. *Botritus* makes the skin thinner, causing the grapes to lose its water content. They turn from green to gold and finally to a raisin-like brown. That is when the heavily botrytized grapes, in the advanced stage of their shriveling, are manually selected and picked.

Now, imagine a box no bigger than a suitcase; the kind of luggage that fits into the overhead compartment of a plane or train. To fill a box of this size with about 20 kilograms of hand-picked and selected botrytized grapes takes *a day's work from two or three people*. In order to proceed with the making of the aszú, the winery has to have another wine, called *alapbor,* or basic wine, already in containers. Whether in a state of fermentation or not, the alapbor is used for the maceration (softening by soaking or steeping in a liquid) of the very dry botrytized grapes, which otherwise would not produce enough liquid. Therefore, depending on the timing of the production of the other wines, the aszú grapes stay in the containers for two to three weeks before they are macerated. The aszú grapes spend anywhere from half a day to four days macerating before pressing. Fermentation takes place either in oak barrels or containers. But just barely, which is why the end product is still very high in sugar and tastes syrupy sweet. The tank-fermented 2005 aszú will be put to barrels at the beginning of next year. Then comes the aging, which takes at least three years, two of them spent in oak barrels. Then the drink is bottled and sold all over the world.

The Tokaj wine region, located in northeast Hungary, was the first closed wine region in the world. An imperial decree defined its borders in 1737; the one-time limits were but slightly modified over time. Today the Tokaj wine region is a World Heritage site and gets visitors from all over the world. If you're wondering, most of the Tokay wine is made from the grape cultivar Furmint. It looks to be a banner year for botrycized wines. And not just in Hungary: American producers may be looking at legendary yields this fall and winter.

According to the November 8, 2005, issue of the *Rochester Democrat and Chronicle,* the Heron Hill Winery in the Finger Lakes Region of New York is gearing up for a big production of Sauternes from its "moldy" Chardonnay grapes. No doubt we can all look forward to the bounty of this fall's harvest . . . in a few years. Praise the Noble Rot!

If you can't wait to try a botrycized wine, head down to a good wine store (most grocery stores or small shops may not carry Tokay or Sauternes) and pick up a bottle. Sauternes are often a little pricey, so be prepared. They're also nectar-sweet and go well with desserts, much like a German Eiswein—think cheesecake or ice cream here—but also can finish off a heavy, cream-laden dinner, match well with a good blue cheese, and are a perfect match for foie gras. (See the "Culinary Corner" in this issue for an easy recipe idea.)

Climate Also Triggers Fungi That Wipe Out Pets: You probably saw the headlines: Poisonous dog food responsible for killing at least 77 dogs prompted a nationwide recall, the U.S. Food and Drug Administration reports. The number may be as high as 100 dogs, according to researchers at Cornell University. Much of the country first heard about aflatoxin when it turned up in pet food.

Of course, the media mostly called this poison a fungus or labeled it "alfatoxin." Both terms are wrong. Aflatoxin is a toxic secondary metabolite produced by the fungus *Aspergillus flavus,* hence the name. It is one of the most deadly natural substances, possibly still the most carcinogenic substance tested by rat liver assay. It mostly occurs on peanuts and corn, plus some other grains or foods when conditions are favorable. The USDA always screens grain for it, since you never know when a flare-up can take place. In press releases on the Diamond Pet Food website in January, officials stated, "What we did know is there was a higher prevalence of aflatoxin in last year's corn crop. This information was communicated by many State Departments of Agriculture because of the weather conditions the corn crop experienced during its growing season. These conditions included severe drought followed by high moisture, which contributed to the growth of this

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fungus in the crop." It's a sad reminder to be ever reverent of the power of the lowly fungus.

***More Ado with* Aspergillus . . .** Reproduction usually involves routing very small particles—sperm, eggs, and spores—away from the site where they were created. Diverse solutions to the basic transport problem have evolved, such as sticky pollen that is picked up by insects, and moss gametes that are readily carried by water. The most interesting methods of transport are ballistic: the catapulting of spores by ferns and the cannon-like firing of fungal spores. An object launched ballistically is accelerated to an initial velocity and then drag acts to slow it, causing it to fall more steeply than it climbs. For heavy flying objects the effect of drag is minimal, but for small, lightweight ones, drag is hard to overcome. So how do these organisms pull it off?

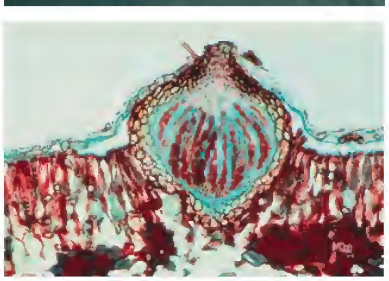
From the Dec 2005/Jan 2006 issue of *Natural History* (114[10]: 28–29) comes an article by Adam Summers focusing on the spore-launching abilities of the fungus *Gibberella zeae,* a pathogen of wheat, and the sexual or "perfect" form of *Aspergillus.* Its spores are spindle-shaped and small enough that five of them would fit end to end across the cut tip of a human hair. Eight spores are packed into a pod-shaped, fluid-filled capsule called an *ascus,* and hundreds of asci are, in turn, crammed into a pimple-like organ called a *perithecium.* (See the images below.) You'll have to check out the article to get all the physics and chemistry of the process, but suffice it to say that the end result is that spores and fluid spurt from the ascus into the air over a distance of less than a quarter-inch. The spent ascus retreats back down inside the perithecium, and a newly bloated ascus comes up. A quarter-inch may not seem very far, but it is more than enough to launch the lightweight spores into air currents that can carry them to a new home. The force on the spores initially accelerates them at an astonishing 870,000 times the acceleration of gravity. They reach speeds of eighty miles an hour, or nearly two million spore lengths per second.

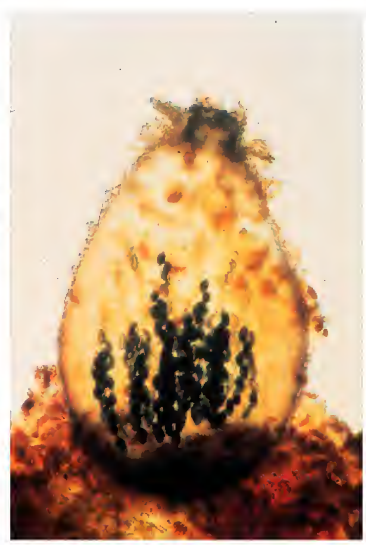
By the way, the entire genome of several species of *Aspergillus* has recently been completed and is published in the December 22, 2005, issue of *Nature.*

Of what "good" are toxins to mushrooms? They really only benefit the fungus if they prevent fungivory, right? Glad you asked. The adaptive significance of toxins in mushrooms has received very little consideration, although it is clear that poisons have appeared (and/or disappeared) many times in mushrooms' evolutionary history. One possibility is that poisons have evolved in some mushroom species to deter their consumption by would-be fungivores before spore dispersal. If this is so, then one might expect poisonous mushrooms to signal their unprofitability in some way.

In a recent study, titled "Explaining *Dioscorides' 'Double Difference':* Why are some mushrooms poisonous, and do they signal their unprofitability?" (*American Naturalist* 2005; 166[6]: 767–75) the ecological and morphological traits associated with edible and poisonous mushrooms in North America and Europe are discussed. Poisonous mushrooms do not tend to be more colorful or aggregated than edible mushrooms (unlike the "aposematic" or warning coloration exhibited my many poisonous plants and animals), but they are more likely to exhibit distinctive odors even when phylogenetic relationships are accounted for. This raises the intriguing possibility that some poisonous species of mushrooms have evolved warning odors (and perhaps tastes) to enhance avoidance learning by fungivores.

The fungal whiff of danger, further discussed: I recently read in the British journal *Nature* of an investigation of the hypothesis that poisonous mushrooms use odor as warning signals. Scientist Tim Lincoln presents the results of a study that determines the incidence of toxicity in mushrooms using modern evolutionary trees (*Nature* 2005; 437 [7063]: 1248).The author gives descriptions of toxins as a metabolic by-product and makes comparisons of related poisonous and edible forms.





Unique Australian Trees

This tree—possibly the rarest on earth—owes existence to fungi. It was in 1994 that hikers stumbled upon a small grove of strange trees in Wollemi National Park in southwestern Australia. Amazingly, the 90-foot tall trees were completely new to science! Investigators soon realized that these specimens were not only an unknown species, but also a tree outside any existing genus of the ancient Araucariaceae family of conifers. (One

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Aseröe rubra in America

by Tim Geho

Aseröe rubra is a member of the stinkhorn family. Like the other stinkhorns, it grows from an egg-like structure that is covered with a universal veil. It has several common names, such as "Starfish Stinkhorn" and "Sea Anemone Fungus." Though *Aseröe rubra* is not often described in North American mycological texts, it has been found in several areas of South Carolina, including Charleston and Columbia. It is not clear if this fungus has always been present or has been introduced through trade with other parts of the world where it is commonly found. It is the most common stinkhorn in the Hawaiian Islands and is widespread throughout the South Pacific. Orson Miller is working on a formal description of the species in North America with a paper due out soon, and the voucher specimens I sent him have become part of the voucher collection at Virginia Tech in the Massey Herbarium, in Blacksburg, VA. The reference number is OKM 28759.

Ecology: Saprobic; found in areas that have been mulched with woodchips or where there is a natural or introduced supply of organic material or leaf debris; in flower beds, lawns, or other cultivated areas; sometimes on rotting stumps; found in the Hawaiian Islands, Africa, Oceana, and many other tropical locations.

Fruiting body: When young, an egg-like structure; when mature, with a stem up to 8 cm long that becomes somewhat flattened and develops 6–10 arms, each one branching into two thin tentacles; with an olive to brown spore mass at the base of each arm, surrounding the central disk; white to orange, reddish orange, or reddish. It has a smell, of course; when mature very strong, reminiscent of rotting meat.

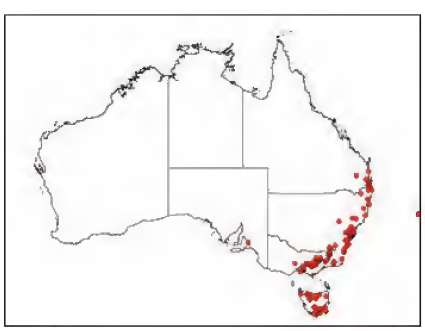
Microscopic features: Spore print is white; spores 5.5–6.5 x 2–3 µm; cylindrical; smooth; inamyloid.

Spore dispersal is by insects, snails, and slugs that are attracted to the smell of the spore mass; subsequently, some of the spore mass sticks to them and is spread to new areas.

Aseröe rubra is similar in appearance to *Clathrus archeri,* which has arms that do not split into thin tentacles. *Clathrus archeri* is widely distributed in North America but rare. Arora (1986) reports it from California. Edibility is not known for *A. rubra*; I do not recommend experimenting.

[This article was mostly reprinted from the MushroomExpert.com website (www.mushroomexpert.com/aseroe_rubra.html). The photos are courtesy of the author, who is president of the South Carolina Mycological Society. The distribution map is courtesy of the Fungi Map website (http://fungimap.rbg.vic.gov.au/fsp/sp003.html).—Ed.]

Tim says (2/15/06), "I have about a half dozen or so duplicate slides that I'd be willing to share/send to anyone who is studying the stinkhorn family." You can find his address in the NAMA Directory.]



Distribution of A. rubra *in its native range in Australia. Photo courtesy of the Fungimap Project of Australia.*

Aseroe rubra *specimens collected in the Charleston, SC, area by Tim Geho. Notice how each arm splits into two thin tendrils. Photos by Tim Geho, courtesy of MushroomExpert.com.*

Common Mushrooms of the Talamanca Mountains, Costa Rica by Roy E. Halling and Gregory M. Mueller. NY: New York Botanical Garden Press, 2005. ISBN 0-89327-460-7 (spiral bound with laminated semi-rigid cover). 195 pp.

Costa Rica has earned considerable international attention for its conservation efforts and is high on eco-tourists' lists of places to visit. For many such visitors, the availability of field guides allows them to increase their appreciation of the huge diversity of organisms that exists in that relatively small nation (roughly the size of New Hampshire and Vermont combined). Until recently, however, mushrooms were not among the groups for which guides existed. That has begun to change, as evidenced by this new offering from two well known U.S. mycologists who have spent considerable time studying the macrofungi of Costa Rica and other parts of Central and South America.

As the title suggests, the book is focused on the most common and distinctive species that occur in one well-studied mountain area, particularly those in its oak forests. It is not intended to be a comprehensive treatment, either taxonomically or geographically. We are still many years away from the time when such a project would be feasible.

The content and organization of the book are typical for a field guide. Sections include The Mushrooms in This Book; Introduction (notes on the biology and geological history of the Cordillera de Talamanca, Documenting the Diversity of Costa Rican Macrofungi, Goals of This Book and the Targeted Audience, Descriptive Notes, including lists of the species thought to be endemic to [occur only in] tropical Montane oak forests, and thought to form ectomycorrhizas with neotropical oaks); Recommendations for Collecting Mushrooms for Scientific Study (preparing specimens—making spore prints, taking photographs, making notes, material for DNA analysis, drying specimens, general reminders); Key to Included Families; Species Descriptions (the bulk of the book); Literature Cited; Specimen Vouchers List; Glossary; and Index.

By my count, 101 species are described in detail, each on one or two pages. Every entry includes the fungus's name and author citation; photograph(s); description (mostly using technical jargon) of macroscopic and key microscopic features (e.g., spore dimensions and shape, cystidia, gill trama, pileipellis, clamp connections); substrate, mycorrhizal host (where applicable), distribution, and commentary. The main photos are all in color, are of good quality, and are effective for identification purposes. Some were taken in the field but most were boringly staged against a neutral background in the lab. For some species, there is an additional aspect photo and/or electron micrographs of spores and/or cystidia, and the section also includes a few habitat photos that provide a good feel for the areas in which the fungi were collected.

According to the authors, "The target audience for this treatment includes mycologists and others interested in tropical diversity, land managers, conservation biologists, educators, naturalists, nature tour guides, etc." It is mycologically authoritative, clearly laid out, and should be quite serviceable for that audience. However, the approach, especially the heavy use of jargon (e.g., "tubulose" or "lamellate hymenophore," rather than "pores" or "gills") may prove a hurdle, or at least an annoyance, for those who aren't trained mycologists. I get the sense that the book was put together by taking material from Roy's and Greg's journal publications without much editing for the less technically grounded users who comprise a large part of the intended audience. Careful editing could have increased the user-friendliness of the book, with negligible loss of precision or accuracy.

I also wish most of the photographs were larger, preferably closer to the size of the "second" photos of species covered on two pages (which are roughly 10 x 13 cm, as opposed to about 6 x 8 cm for most of the main photos). To make room for larger images, extraneous material from the description and comments could be deleted. For instance, we don't need to be told the mushroom has a lamellate hymenophore when the photo clearly shows a gilled fungus. Likewise, given the book's title, we don't need to be told in the distribution that the fungus occurs in the Talamanca Mountains of Costa Rica. In many cases the commentary repeats information from the description or distribution that adds little to our understanding and could be deleted.

Despite these quibbles, I like this little book and think it has succeeded in its intent to provide an enticing introduction to the macrofungal diversity of what by most accounts is a most wonderful part of our planet. At $19.95 it's worth picking up for an armchair excursion even if you aren't planning a Central American vacation any time soon.

This book is Vol. 90 in the Memoirs of the New York Botanical Garden Press, 200th Street and Kazimiroff Blvd., Bronx, NY 10456-5126. Tel. 718-817-8721. E-mail < nybgpress@ nybg.org >. Website www.nybg.org. Price $19.95 + shipping/handling ($6.00 + 5% of subtotal). U.S. checks, Visa, MasterCard, and Amex accepted.

— *Steve Trudell, Seattle, Washington*

Mycelium Running: How Mushrooms Can Help Save the World. 2005. Paul Stamets. Ten Speed Press, Berkeley, CA; ISBN: 1-58008-579-2; paper; 339 pp and tons of great photos and images. Book cover price $35.00.

Mycelium Running is a good book. No, it's a *great* book—a must-read for everyone, not just mycophiles. In his latest tome, Paul Stamets, the guru of mushroom cultivation and of psilocybins, is back with more than just a how-to guide for the grower. *Mycelium Running: How Mushrooms Can Help Save the World* has a message for mankind. The bad news: the planet's health is going down the tubes, and mankind is to blame.

But Stamets offers hope: we can change the world and clean up our act. He has developed techniques for cleaning up the environment and backs it up with success stories—from the small scale, at his personal farm, to large scale in collaboration with big-league researchers at Batelle Labs, to name just a few. His successes are built on the ever-industrious fungal mycelium . . . and his own ingenuity.

However, *Mycelium Running* isn't solely about environmental remediation, although it's a recurring theme. This big book (at $35 it's a good value for a textbook-sized volume) runs the gamut from mushroom cultivation to cooking, from mushroom identification to medicinal properties.

Mycelium Running comprises three parts: The Mycelial Mind, Mycorestoration, and Growing Mycelia; and Mushrooms. The first part is composed of chapters dealing with general information about fungi. While Chapter 1 is entitled "Mycelium as Nature's Internet" and is a little more philosophical, Stamets comes back down to earth, literally, with Chapters 2–4: "The Mushroom Life Cycle," "Mushrooms in Their Natural Habitats," and "The Medicinal Mushroom Forest."

The second part, Mycorestoration, has four chapters on environmental science in general, and saving the planet—the mycelial way—in specific. Chapters 5–8 are "Mycofiltration," "Mycoforestry," "Mycoremediation," and "Mycopesticides." Despite the sublime titles, I found this section to be far and away the most interesting of the three. But then I have quite a few semesters' worth of teaching mycology and environmental science under my belt. Nevertheless, *Mycelium Running* is my first brush with combining the two subjects.

Paul's ideas are every bit as intriguing as his results are astounding. In "Mycofiltration" Stamets outlines how mycelial spawn (fungal hyphae grown on any number of substrates: straw, grain, corn cob wastes, and wood chips) can act to cleanse water of all sorts of contaminants. A big source of water pollution in the U.S. is runoff from livestock feedlots and other farm settings. The author demonstrates how some well-placed sacks of wood chip spawn will not only remove the nutrients and bacteria, but the correct fungus can thrive on this eutrophic brew—with the end result a beautiful flush of edible mushrooms! In "Mycoforestry" Stamets pulls from his own background as a former logger to explain why it is incorrect to call forests a "renewable resource," at least with current management strategies. "Mycoforestry" offers ways to recycle wood (encourage natural wood decay, rather than burning), employment of mycorrhizal fungi, and mycofiltration of silt as ways to manage forests that are more in tune with natural processes. You won't believe what Stamets gets mushrooms to do in "Mycoremediation." Mushroom mycelia are used in a number of experiments to degrade in many cases—or remove from the environment in others—all sorts of toxic materials: petroleum products, organic wastes, even chemical warfare agents like sarin, VX, and other neurotoxins. And Stamets has the patents to back up the work, carried out with colleagues at Batelle Labs. The hyper-accumulation of radioactive isotopes from the environment by mushrooms is discussed. Wild mushrooms have been found to accumulate, within their tissues, levels of isotopes many times higher than the soil in which they are growing. As an example, this was (and remains) a big concern in parts of Europe where fallout from the Chernobyl disaster occurred. But with this knowledge Stamets has shown that mushrooms can literally pull the contamination right out of the soil. The picked mushrooms can then be taken to a proper containment facility, obviating the need for expensive and environmentally destructive soil removal. "Mycopesticides" explores the development of several ingenious ways of killing pests with naturally benign fungal mycelium, in lieu of dumping more chemicals into an already saturated environment. Again, Stamets's necessity ends up being the mother of his inventions. His own house—gradually turning into sawdust at the mandibles of carpenter ants—was the perfect lab in which to try different types of insect killing fungi that he'd cultured on Petri plates. His fungi did the trick—and earned him another patent—but couldn't save the house; it was too far gone.

Part III of *Mycelium Running* is the longest part of the book and is a *tour de force* in mushroom cultivation. Beginning with such self-explanatory chapter titles as "Inoculation Methods: Spores, Spawn, and Stem Butts," "Nutritional Properties of Mushrooms," and "Gardening with Gourmet and Medicinal Mushrooms" the author winds up with "Magnificent Mushrooms: The Cast of Species." The last chapter gives a good overview of cultivated species, including methods, medicinal properties, and mycorestoration abilities.

There are loads of illustrations throughout the book. Another strong point is the wealth of references at the end, leading the reader to additional sources of information.

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Fungi in the News,
continued from page 10

popular member of this family, the Norfolk Island pine, is a popular indoor plant and can get pretty tall in banks or shopping malls.) The strange trees were named to a new genus, *Wollemia.* The find was all the more astonishing given the towering size and the location of the trees—less than 120 miles west of Sydney, a city of more than four million people!

The special characteristics of the tree's habitat appear to have facilitated its survival in such small groves. Hidden in narrow sandstone ravines, the Wollemi pine enjoys consistent humidity and moist soils, which suit both the plant and the mycorrhizal fungi that live in association with its roots. Like almost all Australian plants, *Wollemia* depends heavily on such symbiotic fungi to penetrate hard ground and take up nutrients from the continent's notoriously infertile soils. However, those that coexist with the Wollemi pine are unlikely to thrive in the thin, drier soils of the surrounding plateaus. so in a sense, both organisms may depend entirely on the other for survival.

Same unique Australian trees endangered—by fungi. Just when you started feeling warm and fuzzy all over comes dire news. It seems that the only known wild stand of *Wollemia,* a tree dating back to Jurassic times, has been endangered by a deadly disease probably introduced by an unauthorized hiker. Because the species is so rare, the only known stand consists of fewer than 100 trees, whose location has been kept a closely guarded secret. Those authorized to visit the grove undergo strict infection control procedures that involve sterilizing their footwear and equipment. But the stand has been endangered by a fungus-like pathogen, *Phytophthora cinnamomi,* which was detected in two trees in November last year and was almost certainly introduced by an unauthorized visitor. Measures are being taken to remediate the outbreak, and officials are hopeful that treatment will wipe out the threat to the stand.

Despite the threat, the species is not at risk of extinction. Thousands of trees have been propagated in plantations from the wild stand, and some even went on sale to the public for the first time in October 2005. Although thought to be difficult to cultivate, who knows, these trees may one day turn up in your town. Other species that are now common ornamentals were once known only from fossils (e.g. *Gingko biloba* and the Dawn Redwood, discovered in 1948!).

How much are your children taught about fungi in school? A team of researchers led by the esteemed David Moore, of the University of Manchester, published their findings in the latest issue of *Mycologist* (2005; 19[4]: 152–58). In the United Kingdom, it seems that school children are not getting much exposure to members of the Fifth Kingdom. However, the authors of this report describe numerous teaching aids offered by the British Mycological Association to remedy the situation.

In the same issue of *Mycologist* a report by Jung *et al.* describes the involvement of *Phytophthora* species in the decline of European beech in Europe and the U.S. It seems that pathogen keeps turning up everywhere! Despite the bad news, I always thoroughly enjoying reading *Mycologist* and ***you should too!***

Another magazine that you should be reading on a regular basis is *Mushroom the Journal of Wild Mushrooming.* After a hiatus, *MTJ* is back! The Fall 2005 issue is packed: a huge overview article on *Lepiota,* America's "Most Wanted" mushrooms by Leon, a taxonomic challenge by Gary Lincoff, the always futile (but never boring) attempts to keep up with Maggie Rogers, plus all the artwork, puzzles, stamps, etc., that you come to expect in *Mushroom the Journal.* On newsstands now, wherever wild mushroom periodicals are sold—or you can make life easy for yourself by using the subscription form found in this very issue!

More on truffles . . . It seems the Oregon truffle keeps popping up in the printed media. This time it's the latest issue (March 2006) of *Bon Appétit* magazine, which talks up the finer points of this native edible. The take home message, from several restaurateurs, seems to be that while the North American truffle does not taste quite like its European cousins, the time and methods by which the fungus is harvested and stored can make all the difference. This also seems to be the *cause célèbre* of Oregon Wild Edibles' website, a mail order company supplying both, Oregon black, and Oregon white truffles. For those wishing to have a taste, be prepared to dig deep into your wallets—very deep if you must have truffles from Europe. Before the season ended early this month, a pound of prized white Alba truffles cost $1,600, while Perigord blacks, when you can get them, are pushing $900 per pound, according to a recent article in *The Oregonian* newspaper. As truffle supplies shrink, prices spike even higher. Oregon's black and white truffles, different but closely related, botanically speaking, to Europe's, can be had for a fraction of that cost, $100 to $450 per pound. Of course, with Valentine's Day approaching (as I write this) "truffle" can mean chocolate. But that's something altogether different.

Needed: Bird's Nest Fungi and Puffballs

"I am trying to obtain dried specimens of birds' nest and puffball fungi for display in a community college botany classroom. Our educational suppliers either do not carry them or offer poor quality specimens. Thank you!"

—Linda Raftery
Moraine Valley Community College,
< Raftery@morainevalley.edu >

Pasta Tetrazzini with Mushrooms and Sauternes

15 ml (1 Tbsp.) butter
1 chopped onion
2 finely chopped cloves of garlic
750 ml (3 cups) sliced mushrooms (*I like Sulfur Shelf or Hen-of-the-Woods in this dish, but all wild and commercial mushrooms work well.*)
½ tsp. each of salt, pepper, dried thyme and aromatic herbs
a pinch of Cayenne pepper
50 ml (¼ cup) flour
500 ml (2 cups) milk
375 ml. (1½ cups) chicken broth
125 ml (½ cup) white wine or Sauternes (*Madeira also works well. Do not use "Cooking Sherry."*)
400 g (1 lb) short pasta (rotini, broad egg noodles, etc.)
1 liter (4 cups) cooked chicken (turkey, veal or ham) cut up into small pieces
a few tsps. fresh chopped parsley (optional)
50 ml (¼ cup) grated Parmesan (or more)

GARNISH (*optional*)
15 ml (1 Tbsp.) of butter
1 finely chopped clove of garlic
250 ml (1 cup) of bread crumbs
25 ml (2 Tbsp.) fresh chopped parsley
25 ml (2 Tbsp.) almonds or chopped pecan nuts
25 ml (2 Tbsp.) Parmesan

Melt the butter in a thick-bottomed saucepan. Fry the garlic cloves and onion in it until they become soft but not brown. Incorporate the mushrooms and the spices until the mushrooms release their water, which takes a few minutes.* Add flour and cook for 1 minute, stirring without allowing it to turn brown. Using a whisk, gradually incorporate the milk, broth, and wine until all lumps are gone. Continue cooking, stirring until the sauce thickens and comes to a boil. *Do not let it boil.* Meanwhile cook the pasta *al dente.* Drain and add it to the sauce along with the chicken, parsley, and Parmesan. Pour into a casserole dish.

GARNISH: In a small frying pan melt the butter at low heat. Brown the garlic. Add the breadcrumbs, parsley, and Parmesan. Mix well. Spread over the casserole.

Cook in the oven at 180°C (375°F) for 30 minutes until the sauce starts bubbling and the breadcrumbs become golden brown. Serves 4.

*As a variation of this recipe, add the mushrooms at the end of the process if you want them to be a little crisper.

This dish is so good that it will have you singing like the famous opera star for whom it's named! —Britt

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NAMA Foray '06, continued from page 1

Model Forest in August 2005, 30 members of the Edmonton Mycological Society collected and identified nearly 550 different fungi. That area was ecologically less diverse than the Foothills Model Forest area, so we anticipate a large diversity of fungi at the NAMA foray!

Some of the specific sites we are identifying are located within the ecologically diverse study areas of the Foothills Model Forest, including such areas as undisturbed and disturbed habitats: boreal, montane, and subalpine forests and wetlands. Other areas we are proposing include trips into the spectacular alpine regions as well as some foraying from canoes along a pristine creek joining several beautiful lakes in William Switzer Provincial Park.

If you would like to receive further information about the Edmonton Mycological Society and what we do, contact information can be found on our website: www.wildmushrooms.ws. We hope to see you all in August!

[*Dr. Thormann is President and Martin Osis is Program Director of the Edmonton Mycological Society.*]

Errata

• In the Jan/Feb 2006 issue of THE MYCOPHILE some information was dropped from the review of Taylor Lockwood's new DVD, including crediting Sandy Sheine, NAMA Education Chair, for providing the review. Thanks, Sandy!

Taylor's *The Mushroom Identification Trilogy* DVD Video is 58 min. long and costs $24.95. The DVD may be purchased through the website www.fungiphoto.com, by calling 800-958-5809, or by mail to Taylor's MIT, P.O. Box 1412, Mendocino, CA, 95460. Price is $24.95 plus $2.05 for shipping and handling (total $27.00).

• In the story "Mushrooms in Mexico" by Ron Meyers, I misspoke when I referred to him as merely a "contributor" to the Kansas *Mycolog*; of course he's been the editor of that newsletter for years. Sorry, Ron!

Remembering Wayne Ellett

by Dick Grimm with Shirley Hyatt, OMS

Wayne Ellett died Jan. 6, 2006, at age 89. Wayne was a charter member of the Ohio Mushroom Society (OMS) as well as of NAMA.

From the *Columbia Dispatch:* "Wayne received a B.A. from Kent State and M.Sc. and Ph.D. from Ohio State University where he taught Botany, Plant Pathology and Mycology. Trustees named the plant and diagnostic clinic the C. Wayne Ellett Plant and Pest Diagnostic Clinic to reflect his contributions to the university, his expertise in plant disease diagnosis, and his establishment of the plant disease clinic. He was a consultant with the National Science Foundation in Washington, D.C., and with the Institute of Biology in India. He retired as Professor Emeritus in 1981 . . .

"Wayne enjoyed photography—especially of mushrooms and tree flowers—hiking in state parks, stamp collecting, birding and working in his yard. He served in the Pacific while in the United States Navy during WW II . . . Contributions may be made in Wayne's memory to Overbrook Presbyterian Church, 4131 North High St., Columbus, Oh. 43214, or to the Leukemia & Lymphoma Society, 2225 City Gate Drive, Columbus, Oh. 43219. . . ."

I remember Wayne as a soft-spoken man with a love for the fleshy fungi. We spent some time together hunting mushrooms, mostly in central Ohio. Wayne loved photographing his mycological discoveries. He told me once, "One can't, as a photographer, ever walk by an *Amanita muscaria* or *Mycena leiana* without taking a picture," and it seems he never did.

Wayne was always active, especially with the Metro Parks, heading up mushroom walks and giving talks about the fleshy fungi. He was a charter member of our society and quite active in the early stages of OMS.

Wayne and his wife Mary attended some of the NAMA forays along with Phyllis and me. I recall the one in North Carolina, mostly because when we crossed the border into South Carolina, only a few miles away, the police gathered all of the hunters up and planned to take us to jail under suspicion of practicing illicit drug trafficking. Wayne was instrumental in convincing them that the hunt was legitimate.

Wayne, along with five other men, mostly mycologists, met in a Boy Scout Camp between Marion and Columbus and initiated the National Amateur Mycological Society (NAMA), which of course exists to this present time and has well over a thousand members, both here in the States and abroad.

Shirley adds: Wayne was Terry's and my first step into mushrooming and the OMS. We'd gone to a winter presentation by Wayne at a local garden club—just something we'd seen advertised in the newspaper—and

Continued on next page

Mushroom

The Journal of Wild Mushrooming

Other magazines urge you to subscribe, but ***we invite you to join friends on what we call "printed forays"!***

For 20 years, *Mushroom the Journal* has provided information of value to those who like to hunt, name, cook, study and photograph wild mushrooms. We've answered —

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- If you discover a new species, can you name it anything you want?
- Should you worry about violence from commercial pickers?
- Can you do more with choice edibles than toss them in a sauté pan with butter?
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P.S. How did you hear about Mushroom the Journal?

Au Canada!
continued from page 2

be sufficient interest. Calgary is an additional possibility for air travel, though a bit more distant. Jasper is about 30 miles from Hinton, with Lake Louise and Banff within sightseeing possibilities for anyone preferring a more extended visit to the region. If you have never visited this area of our continent, it is one of those unique lifetime adventures you do not want to miss.

Wayne, continued from page 16

his presentation was wonderful—expansive and full of the wonder of mushrooms, their varied colors, shapes, sizes, surprising locations: the works. It was he who gave us the OMS club information, and from there we moved on to greater mushrooming involvement. Doubtless there are many others whose interest in mushrooms was first sparked by Wayne's enthusiasm and outreach. Wayne was an irrepressible photographer (he gave most of his slides to OSU) and a generous teacher. We are thankful. Our sympathy goes out to his wife, Mary, in a special way.

Book Reviews,
continued from page 13

Mycelium Running gives a ton of useful and important information and is an enjoyable read. I recommend this book to anyone with an interest in mycology, nature, or simply the health of the planet. I'm confident that many of the techniques pioneered by the author will be standard practice in the future. The planet would benefit from a few more like Paul Stamets.

—Britt Bunyard

2006 NAMA Photo Contest Entry Form

Name: _____

Address: _____

_____

_____

Phone: _____ E-mail: _____

_____

Classification: Limited [ ] Open [ ]

35mm slide contest: If there are not enough entries for two divisions, all entries will be judged in one division.

Digital: There will only be one division.

Entry Titles

Pictorial (Limited to 6 entries)

P–1: _____ P–4: _____

P–2: _____ P–5: _____

P–3: _____ P–6: _____

Documentary (Limited to 6 entries)

D–1: _____ D–4: _____

D–2: _____ D–5: _____

D–3: _____ D–6: _____

Judges' Option (Limited to 3 entries)

JO–1: _____

JO–2: _____ S–1: _____

JO–3: _____ S–2: _____

S–3: _____

Entry fee enclosed: [ ] $4.00 for 35mm slide contest
[ ] $4.00 for digital contest

- *You must submit two entry forms if you enter both contests. Forms may be photocopied or downloaded from the Internet.*
- *Digital images may be e-mailed to namphocon@yahoo.com or mailed on a CD.*
- *For additional Digital Photo Contest Guidelines and FAQs see http://briefcase.yahoo.com/namphocon.*
- *Mail entry forms, entry fees, slides and/or CD, with check payable to NAMA, to*

John Plischke III—**Slides**
201 Culbertson Avenue
Greensburg, PA 15601
(724) 832-0271
fungi01@aol.com

Damian Pieper—**Digital**
35 Ventura Avenue
Iowa City, Iowa 52245
namphocon@yahoo.com

All entries must be received by June 15, 2006!

Annual Photo Contest Rules

Eligibility: The contest is open to all paid-up NAMA members. Non-members may enter if a separate check for 2006 dues ($35.00) is enclosed with the entry. Slides that have previously won (including Honorable Mention) are not eligible.

Closing Date: All ***entries*** must be received by the Contest Director(s) ***on or before June 15, 2006.*** Allow at least one week for mailing.

Subject material: For Pictorial and Documentary, organisms from the Myxomycota (slime molds) and the classes Basidiomycetes and Ascomycetes of the Eumycota ("true fungi") are eligible. For Judge's Option, nearly anything goes as long as 1) the theme relates to fungi and 2) fungi are a key element of the photograph.

Entry Divisions: For the 35mm slide contest, if there are not enough entries for two divisions, all entries will be judged in one division. There will be only one division in the digital contest.

Pictorial: This division is for single photos that illustrate the beauty and variety of fungi in form and color. The objective is a photo suitable for display or illustration in a fine book. Judging criteria include consideration of both technical (focus, depth of field, exposure, lighting, color, absence of distracting elements) and artistic (composition, color, background, lighting) aspects.

Documentary: For single photographs especially suited as illustrations in a field guide or monograph or for use in a lecture. Emphasis is placed on portrayal of key morphological characteristics such that the usefulness of the image as an identification aid is maximized. Subjects may be shot in the field, laboratory, or studio; and the photographer has complete freedom to process, manipulate, or orient the specimen in any desired manner to achieve the goal. Close-ups of single features and photomicrographs are acceptable. Judging criteria will be the same as in the Pictorial category, but they will be of secondary importance to the overall mycological utility of the photo. Accurate identification of the subject will be a consideration.

Judge's Option: For single photos or series that do not fit into Pictorial or Documentary divisions. Examples include time-lapse series, ecological relationships of fungi (e.g. fairy rings), fungi with animals, people enjoying fungi.

Mushrooms in a Series: For single photos or series which do not fit into the Pictorial or Documentary divisions. Examples include time-lapse series, etc.

Entrant Classifications: Limited or Open classification. *Open* is intended for experienced photographers who are not entering for the first time. *Limited* is intended for the novice. All entries from a person must be in either Limited or Open: no dual classification entrants. Entrants must compete in the Open class if they have won 1st, 2nd, 3rd, or Merit in two or more previous contests. The two classifications are judged separately for the Pictorial and Documentary divisions, and together for the Judge's Option.

Awards: First, 2nd, and 3rd prizes will be awarded in Pictorial and Documentary in both Limited and Open classifications. Additional Honorable Mention awards are given at the judges' discretion up to a maximum of 15% of the entries in that particular category. There will be no ranking in the Judges' Option division, and up to 20% of the entries may be selected. Prizes such as film, subscriptions, book credits, certificates, etc. are awarded, depending on the contest director's resourcefulness and the generosity of donors.

Format: Send color transparencies of any size that will fit into two-inch square plastic or cardboard mounts that function in a standard 80-slide carousel. Glass mounts will not be accepted. Slides may be cropped, retouched, or otherwise reprocessed.

Marking, Listing, and Submitting Slides: Mark each slide with a projection spot at the lower left corner of the mount when viewed right-side up out of the projector. The same side should include the entrant's initials, division initials, and slide number (e.g. OQ K-P-1). Use 1a, 1b, 1c, etc. for sequences. Fill out and submit the Entry Form along with your slides. Send by first class mail. Acknowledgment of receipt will be sent to you. If possible, arrange your packaging so that it can be reused in returning your slides.

Marking, Listing, and Submitting Digital Photos: What information do you want included in the digital photo's file name? If your computer program permits, we'd like to have at least these three things in your filenames: D (for Documentary), JO (for Judges Option), P (for Pictorial), or S (for Mushrooms in a Series); the photographer's initials in 3 spaces, followed by the Genus and species of the fungus or myxomycete if you can identify it; your title for the photo (unless it is the same as the previous) and, of course, the file extension. If you have enough space for your full name, the date the photo was taken, etc., or you wish to include other info, that is a bonus but not required.

Entry Fee: The entry fee for slides is $4.00. The entry fee for the digital contest is $4.00.

Reproduction: Entry in the contest constitutes the consent of the photographer to allow NAMA to reproduce two copies of each winning slide or digital photos (including Honorable Mention) for circulation by the Education Committee among the membership and affiliated societies. NAMA also reserves the right to post images of the winning slides and digital photos on the NAMA website, Namphocon, and in The Mycophile. All copyrights remain with the photographer.

Questions? Contact the Chair of the NAMA Photo Committee: John Plischke III, 201 Culbertson Ave, Greensburg, PA 15601, (724) 832-0271, e-mail: <fungi01@aol.com>. **See page 17 for Entry Form.**

Introducing Alberta's Mushroom Ambassador—the Boreal Bolete

by Loretta Puckrin

Leccinum boreale. Common Names: Northern Roughstem, Red Caps. Family: Boletaceae. Season: August to September (although in 2005 we found the first one on June 18)

If you want a good edible mushroom that doesn't have any dangerous look-alikes, grows for a long period of time, repeatedly grows in the same area, and can be found in deciduous trees, conifers and grass, then this family of mushrooms is for you. The *Leccinum boreale* was picked through a lengthy process by PAWMA (Pick a Wild Mushroom Alberta) as the representative mushroom of Alberta.

As many Boletaceae are edible—*Leccinum, Suillus,* and *Boletus* alike—people are not particular as to which species they pick. One reference states, "This common and widespread bolete has a number of look-alikes, all of which, so far as is known, are edible." There are, however, differences. As you move from delight in finding something you know is edible and celebrating the harvest of three mushrooms, you will also find yourself wanting to differentiate between varieties.

First check to make sure that the underside of the cap has tubes rather than gills or pores. If you cut a sample across the cap you will see the elongated tubes that form the bottom spongy matter. The second step is to check the stalk. All *Leccinum* varieties have tufted hairs or small scales called "scabers" on the stalk. If you can find the tubes but not the scabers you likely have a different member of the Boletaceae. It might still be edible but it is not a *Leccinum boreale*.

The *L. boreale* has an orange-red cap, which can grow up to 16 cm across, with off-white pores and a rough stem. The stalk is white and solid, varying between a few centimetres to almost 15 cm in height, depending on the growing conditions. Normally it is 10 cm in height and 3 cm in width, generally wider at the bottom than at the top but without a veil or volva. The spore print is yellow-brown to dull cinnamon or medium brown. When it grows in the forest, the *L. boreale* likes clearer areas where the undergrowth is minimal; but it also grows quite contentedly in knee high grass!

With the Boletaceae, the staining color is often a major way to tell these varieties apart as the cap color can be difficult to define and will often overlap from species to species. The *L. boreale* stains dark when cut. For this reason many pickers choose not to clean their mushrooms until they get home. Other people insist on cleaning the harvest, mushroom by mushroom, as they are picked. Why the big difference? One group does not like the staining colour and if the mushrooms are cooked very soon after cutting the discoloration is minimal. Cooking inhibits the discoloration process. The second group cleans on site because they feel that the staining is secondary to removing maggots from the mushroom. Yes, the insects, and even squirrels, enjoy this mushroom as much as people. By cleaning the mushrooms and removing all intruders you don't give the "wildlife" time to eat more of your harvest. This does, however, give your harvest the look of paper leaves and sticks rather than mushrooms.

Whether you clean on site or at home, it is important to know where the insects are most likely to be. You can't assume that because it is a young mushroom it will be clean. There have been times when a mature species was clean and a young specimen just beside it was full of insects. The first step is to cut off the stalk. The maggots generally travel up the stalk to freedom at the top of the cap. Often the path will be along the centre of the stalk. Cut the stalk horizontally to check infestation. If the damage is along the center, you can often remove the center portion, leaving the majority of the stalk to enjoy. If you get the idea that the stalk is a treasured part of the mushroom, you are right! With the cap, often the infestations are limited to the spongy pores on the underside of the cap and marginally the cap itself. Cleaning off the spongy layer will often be sufficient to prepare the cap for cooking. The center of the cap can be infested while the outside edges are clean. You need to check all the parts carefully if you don't want a high protein content in your dish.

This variety of mushroom can be dried or cooked and then frozen. The dried mushrooms are easy to use and can later be crushed to a powder. If frozen in an ice cube tray, the mushrooms are ready to use and don't need rehydrating. The choice is personal, but most people agree that the best way, as with all wild mushrooms, is to eat them fresh.

Loretta Puckrin is a member of the Edmonton Mycological Society—our host club for this year's Annual NAMA Foray. This article was reprinted with permission.

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THE MYCOPHILE

Mushroom of the Month

Stropharia alcis

The basidiomycete S. alcis *is known only to occur on the dung of moose.* *See page 7 for the rest of the story.*

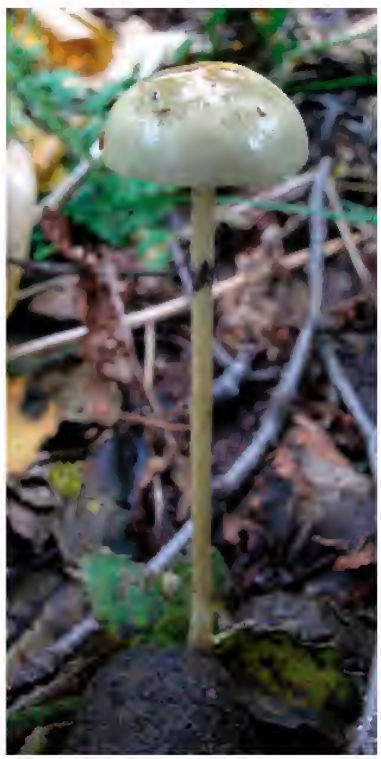

Photo: Andrus Voitk